FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

February 17 to February 23, 2013 (Week 08)

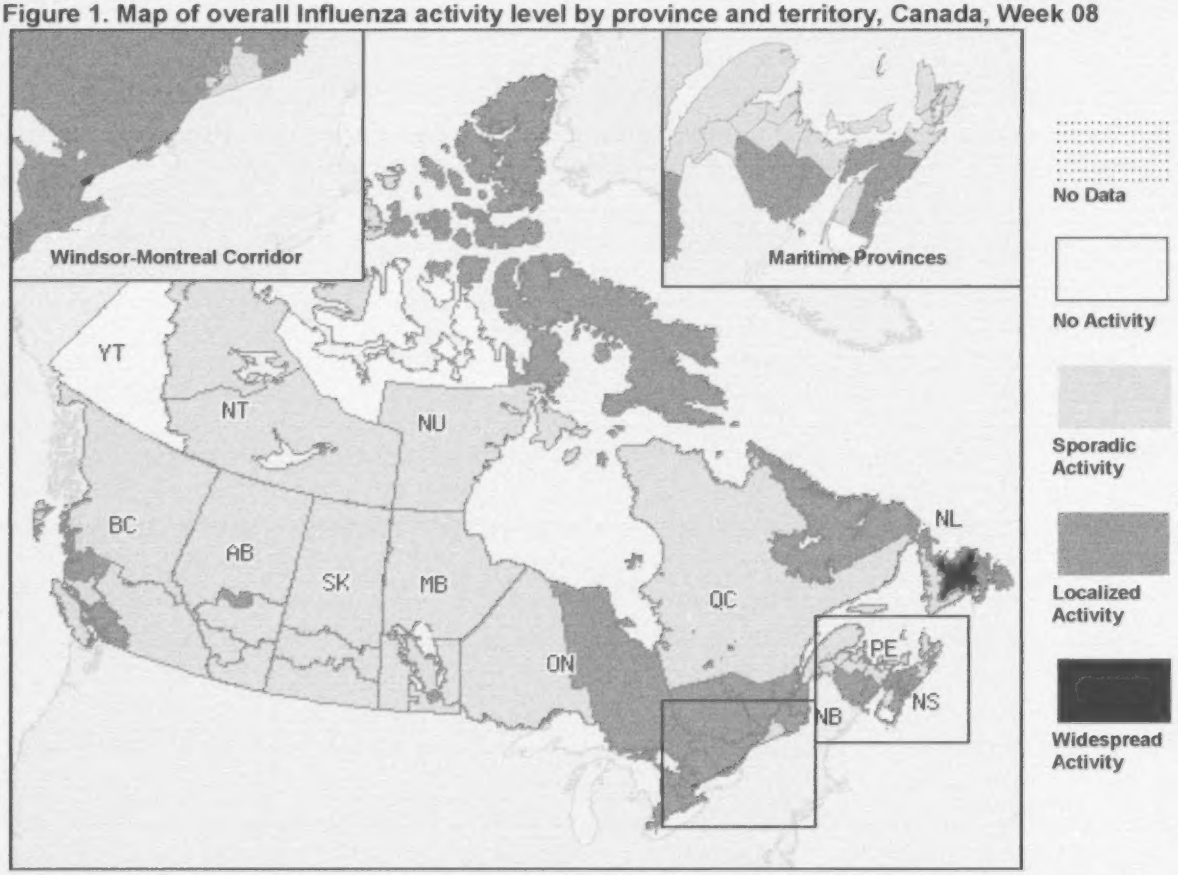
Overall Summary

- In week 08, specific indicators of influenza activity continued to decrease, while indicators of the circulation of respiratory viruses such as the ILI consultation rate were similar to recent weeks.
- The percentage of laboratory detections positive for influenza continues to decrease, while the proportion of positive tests for influenza B has increased in recent weeks. The percentage of laboratory detections positive for RSV and rhinovirus were similar to recent weeks.
- The number of regions reporting widespread or localized activity was similar in weeks 07 and 08; however, there is an overall decline in influenza/ILI activity from the peak in early January.

Influenza Activity (geographic spread) and Outbreaks

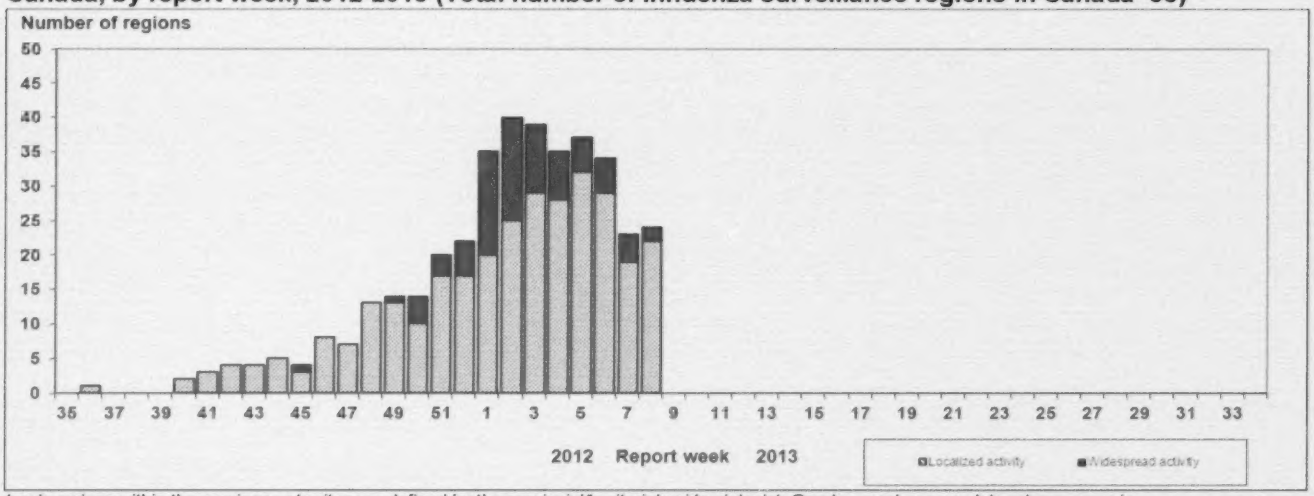
In week 08, 2 regions [in ON(1) and NL(1)] reported widespread activity and 22 regions [in BC(2), AB(1), MB(1), ON(5), QC(3), NB(2), NS(5), NL(2) and NU(1)] reported localized activity. The number of regions reporting widespread or localized activity was similar in weeks 07 and 08; however, there is an overall decline in influenza/ILI activity from the peak in early January (Figures 1 and 2). In week 08, 34 new influenza outbreaks were reported: 18 in long-term-care facilities, 3 in hospitals, 2 in schools, and 11 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 08



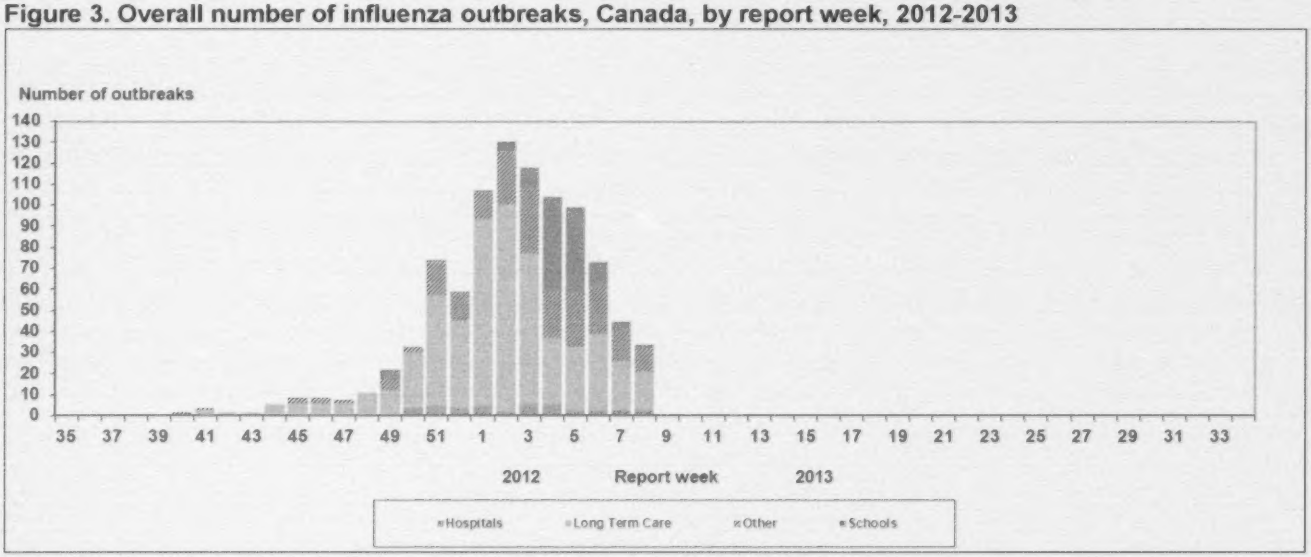
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests continued to decline, from 14.1% in week 07 to 12.7% in week 08 (Figure 4). Among the influenza viruses detected in week 08 (n=671), 71.5% were positive for influenza A viruses [of which 29.8% were A(H3), 11.7% were A(H1N1)pdm09, and 58.5% were A(unsubtyped)] (Table 1). The proportion of A(H1N1)pdm09 among positive influenza A detections has increased from 1.0% in week 52 to 11.7% in week 08. The proportion of influenza B detections has increased over the past 5 weeks from 2.1% in week 03 to 28.5% in week 08 (Figure 4). Cumulative influenza virus detections by type/subtype to date are as follows: 95.8% influenza A [35.1% A(H3), 3.3% A(H1N1)pdm09 and 61.6% A(unsubtyped)] and 4.2% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 20,023 cases to date this season (Table 2). The proportion of cases by age group is as follows: 13.3% < 5 years; 8.2% between 5-19 years; 15.3% between 20-44 years; 16.7% between 45-64 years of age; 46.6% ≥ 65 years.

The percentage of tests positive for RSV in week 08 (20.5%) was similar to weeks 06 and 07. The percentage of tests positive for rhinovirus in week 08 (8.5%) was similar to week 07. In week 08, the percentages of tests positive for coronavirus and parainfluenza both decreased slightly at 3.8% and 2.1%, respectively. The percentage of tests positive increased slightly for hMPV (3.2%) and was stable for adenovirus (1.3%) (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (February 17 to February 23, 2013)						Cumulative (August 26, 2012 to February 23, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	94	0	65	17	12	29	1908	0	1494	170	244	208
AB	40	0	17	16	7	50	2267	0	1787	338	142	247
SK	11	0	1	2	8	12	758	0	467	28	263	93
MB	17	0	0	0	17	0	579	0	78	6	495	39
ON	129	0	48	18	63	43	7776	0	3651	237	3888	233
QC	102	0	1	2	99	57	9491	0	546	26	8919	271
NB	15	0	0	0	15	0	1323	0	428	15	880	4
NS	28	0	3	1	24	0	260	0	165	5	90	2
PE	8	0	8	0	0	0	92	0	61	3	28	1
NL	36	0	0	0	36	0	669	0	152	0	517	4
Canada	**480**	**0**	**143**	**56**	**281**	**191**	**25123**	**0**	**8829**	**828**	**15466**	**1102**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (February 17 to February 23, 2013)					Cumulative (Aug. 26, 2012 to February 23, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	35	3	5	27	23	2479	149	832	1498	181
5-19	16	2	5	9	59	1376	51	623	702	264
20-44	40	11	7	22	14	2899	220	1152	1527	162
45-64	48	10	5	33	16	3215	214	1156	1845	126
65+	105	4	25	76	17	9159	73	3478	5608	162
Unknown	5	2	3	0	0	164	18	144	2	0
Total	**249**	**32**	**50**	**167**	**129**	**19292**	**725**	**7385**	**11182**	**895**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

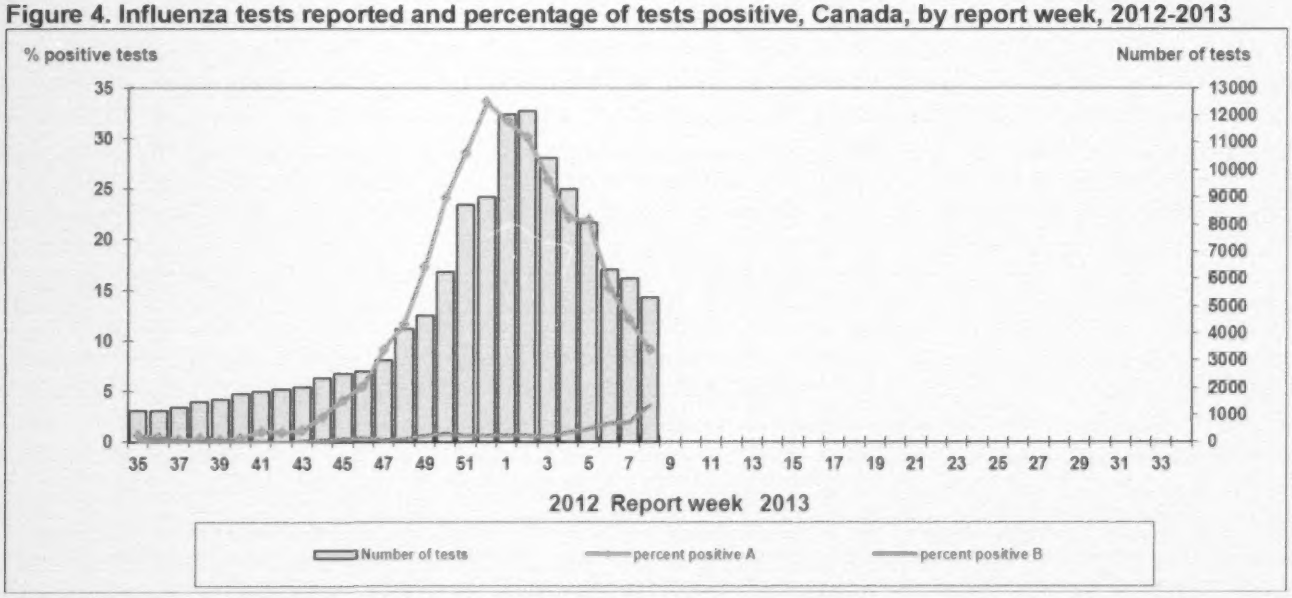
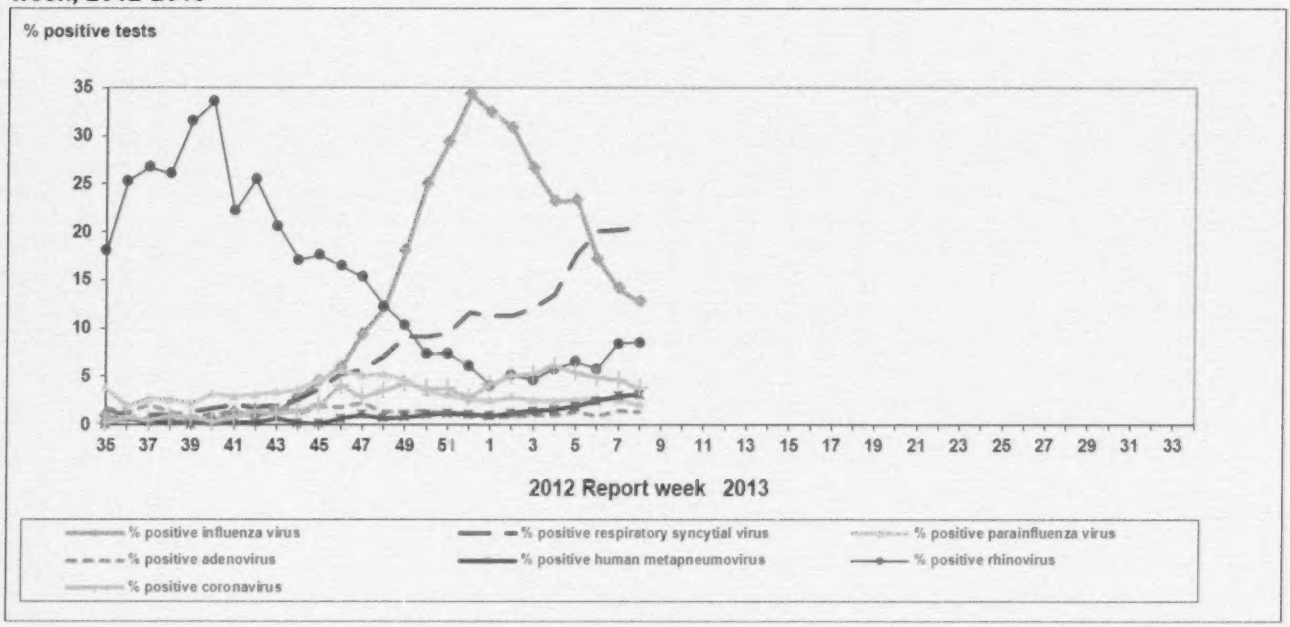


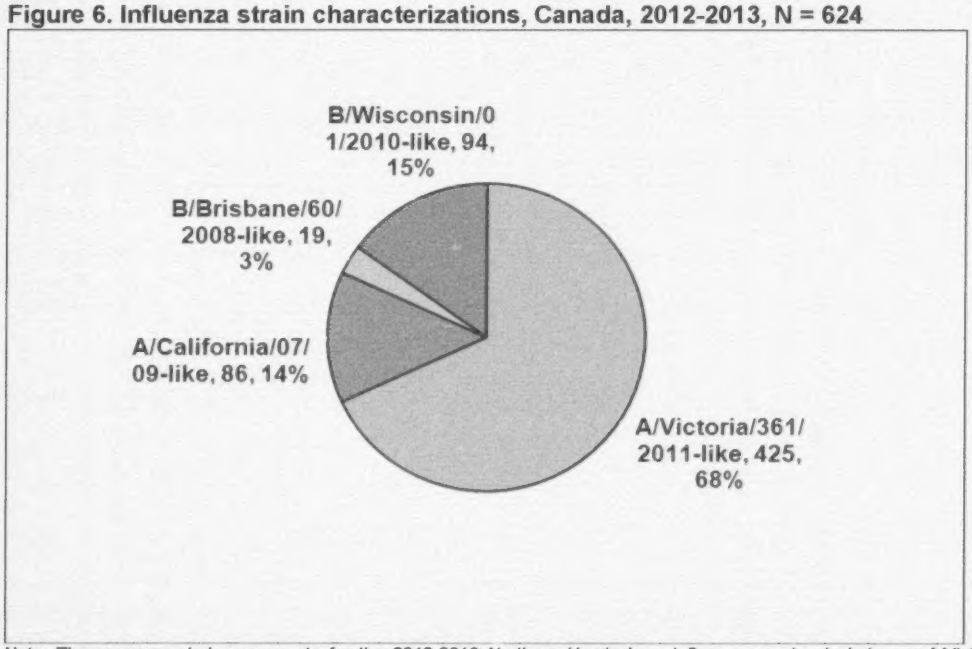
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 624 influenza viruses. The 425 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 86 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 94 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 19 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 624



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 583 influenza viruses for resistance to oseltamivir, and 581 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 695 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

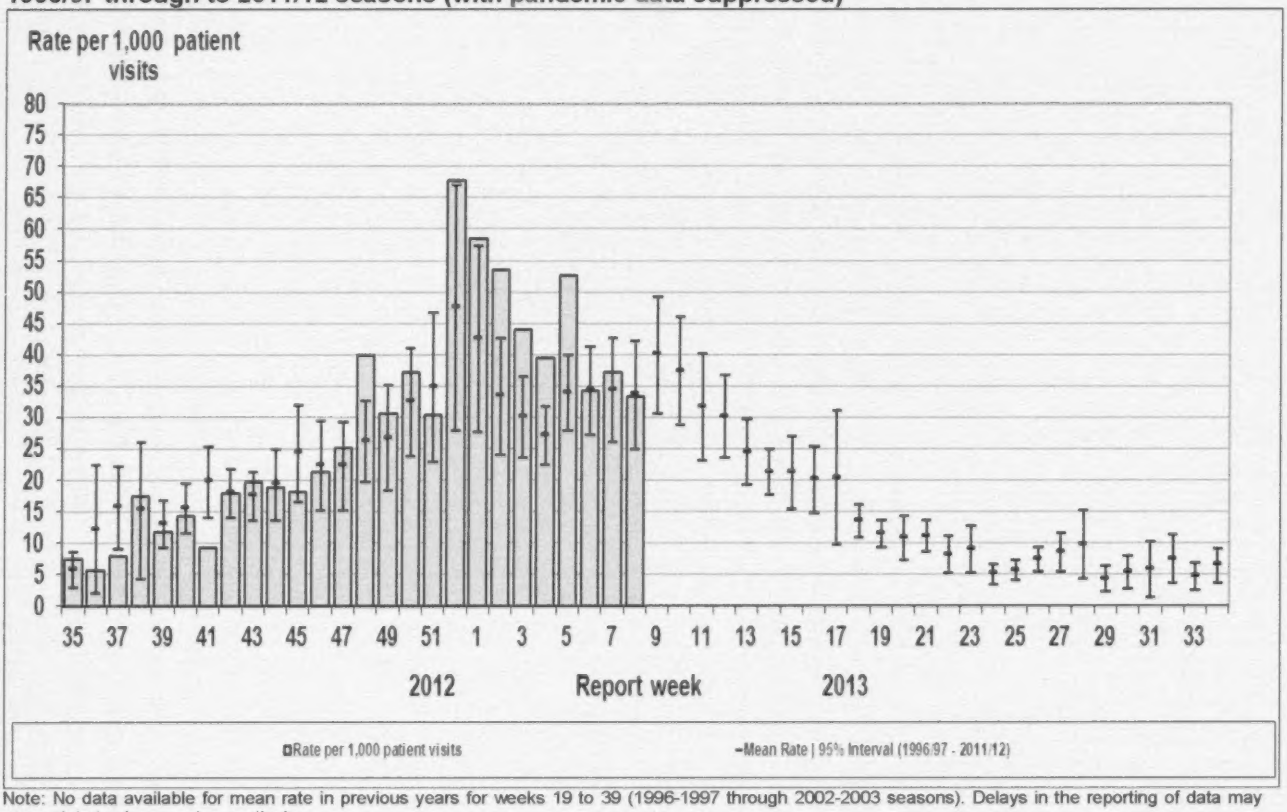
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	412	0	412	0	630	630 (100%)
A (H1N1)	77	0	76	0	65	65
B	94	0	93	0	NA*	NA*
TOTAL	583	0	581	0	695	695 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased slightly from 37.0 ILI consultations per 1,000 patient visits in week 07 to 33.2 in week 08. After 6 weeks with ILI rates above the expected level for this time of year (from weeks 52 to 05), the rate has been within the expected range since week 06 (Figure 7). In week 08, the highest consultation rate was observed in children <5 years of age (64.3/1,000), followed by children 5-19 years of age (62.6/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate was stable at 123.1 antiviral prescriptions per 100,000 new prescriptions dispensed in week 08, which continues to follow the downward trend in the percentage of positive laboratory tests for influenza. In week 08, the antiviral prescription rate decreased for all age-groups except seniors. The highest rate continued to be observed for seniors ≥65 years of age, at 460.4/100,000.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)
In week 08, 18 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 27 in week 07. Among the cases reported in week 08, 11 (61.1%) were identified with influenza A and 7 (38.9%) with influenza B. The age distribution is as follows: 2 cases (11.1%) under 6 months of age, 7 (38.9%) between 6-23 months, 6 (33.3%) 2-4 years of age, 2 (11.1%) 5-9 years of age, and one (5.6%) 10-16 years of age. One ICU admission was reported during week 08 in a child between 6-23 months of age with influenza A.

Since the start of the 2012-13 season, a total of 620 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 571 (92.1%) with influenza A [of which 67 (11.7%) were A(H3N2), 15 (2.6%) were A(H1N1)pdm09 and the remaining 489 were A(unsubtyped)], and 49 (7.9%) with influenza B. The distribution of cases by age group is as follows: 125 (20.2%) <6 months of age; 142 (22.9%) age 6-23 months; 191 (30.8%) age 2-4 years; 110 (17.7%) age 5-9 years; and 52 (8.4%) age 10-16 years. Fifty-four of the 620 cases (8.7%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada.

Adult Influenza Hospitalizations and Deaths (PCIRN)
In week 08, 20 new laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 51 in week 07. The majority of hospitalizations (16) were cases with influenza A: one influenza A(H3N2) and the rest A(unsubtyped). Four cases were reported with influenza B. The age distribution is as follows: 12 cases were ≥65 years of age, 7 cases were 45-64 years of age, and one case was 20-44 years of age. Four ICU admissions were reported during the current week, three with influenza A(unsubtyped) and one with influenza B. Two individuals admitted to the ICU were ≥65 years of age and two were 45-64 years of age. No deaths were reported this week.

From November 4, 2012 to February 23, 2013, a total of 1,300 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 1,226 (94.3%) cases with influenza A [of which 162 (13.2%) were A(H3N2), 8 (0.7%) were A(H1N1)pdm09, and 1,056 (86.1%) were A(unsubtyped)]; 33 (2.5%) cases with influenza B; and 41 (3.2%) cases for which the influenza type has not yet been reported. The age distribution of hospitalizations is as follows: 895 cases (68.8%) were aged ≥65 years, 265 cases (20.4%) were aged 45-64 years, 135 cases (10.4%) were aged 20-44 years, and 5 cases (0.4%) were <20 years of age. There have been 121 hospitalizations for which admission to the ICU was required; the majority of which were adults ≥65 years of age (58.7%). Of the 121 ICU admissions, 37 (30.6%) had at least one co-morbidity, two (1.7%) had no co-morbidities, and 82 had no information to date. A total of 53 deaths have been reported, 8 (15.1%) with influenza A(H3N2), 43 (81.1%) with influenza A(unsubtyped), one (1.9%) with influenza B, and one (1.9%) with influenza untyped. Forty-six of the 53 deaths (86.8%) were in adults ≥65 years of age, 6 (11.3%) were adults 45-64 years of age, and one (1.9%) was 20-44 years of age. Twenty-four deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In week 08, 231 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (88.3%), predominantly A(H3). The proportion of cases of influenza B among hospitalizations has been increasing in recent weeks. The highest proportion of hospitalisations were adults ≥65 years (42.9%), followed by adults aged 46-64 (20.3%) and children aged 0-4 years (18.2%). Of the 61 cases with available data, 10 (16.4%) were admitted to the Intensive Care Unit (ICU). Fourteen deaths were reported: 12 were adults ≥65 years of age, one adult aged 45-64 years and one adult 20-44 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season, 3,625 influenza-associated hospitalizations have been reported. Of these, 96.6% have been influenza A, predominately A(H3); and 3.4% have been influenza B. Age information was available for 3,622 cases, and the age distribution is as follows: 56.4% ≥65 years; 16.8% 45-64 years; 8.7% 20-44 years; 0.9% 15-19; 3.6% 5-14 years and 13.6% 0-4 years of age. Among the 952 cases with available data, there have been 148 (15.5%) hospitalisations for which admission to ICU was required; the highest proportions were among adults aged 45-64 years of age (37.8%), and ≥65 years of age (33.8%). To date this season, 243 deaths have been reported: 203 were adults ≥65 years of age, 26 were adults 45-64 years; 9 were adults 20-44 years and 5 were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: The most recent WHO surveillance report (1 March 2013) summarizes global influenza surveillance data from week 07 (February 10 to 16, 2013). In northern Africa, influenza detections declined, despite continued circulation reported in some countries. In tropical Central African countries, most countries reported low-level circulation of influenza. In northern China, the Republic of Korea and Japan, ILI activity and the percentage of specimens positive for influenza continued to decrease; however, activity in Mongolia remains high. Influenza A(H3N2) has been the predominant virus in northern Asia this season; however, there is an increasing percentage of A(H1N1)pdm09 in northern China over recent weeks. In tropical countries of South East Asia, influenza activity was similar to previous weeks; Cambodia, India, Sri Lanka and Thailand reported decreasing and low-level influenza circulation. In Central America and the Caribbean, influenza activity continued to decline, with cases of ILI and ARI more commonly due to RSV and rhinovirus.
World Health Organization influenza update

United States: During week 08, influenza activity remained high, but decreased in most areas. Twelve states reported widespread influenza activity, Puerto Rico and 28 states reported regional influenza activity, and the District of Columbia and 7 states reported local activity. The national percentage of outpatient visits for ILI was 2.7% which is above the national baseline of 2.2%, but has been declining for the past 5 weeks. Eight of the 10 regions reported ILI above region-specific baseline levels, however no states reported high ILI activity in week 08. The percentage of deaths due to pneumonia and influenza has been above the epidemic threshold since week 01; in week 08 it was 8.4%. The proportion of tests positive for influenza viruses declined to 16.9% in week 08. The number of influenza B detections has been relatively stable over recent weeks, despite a decline in the total number of specimens positive for influenza. Of the positive influenza detections in week 08, 53.0% were positive for influenza B viruses. Of the 283 influenza A viruses for which subtype information was available, 86.2% were A(H3). Since October 1, 2012, the CDC has antigenically characterized 1,340 influenza viruses. Among influenza A(H3N2) viruses, 823 (99.5%) were A/Victoria/361/2011-like, and 4 (0.5%) showed reduced titers to A/Victoria/361/2011 antiserum. Among influenza A(H1N1)pdm09 viruses, 104 (99.0%) were A/California/7/2009-like, and one (1.0%) showed reduced titers to A/California/7/2009-like antiserum. Among influenza B viruses, 293 (71.8%) were B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 115 (28.2%) to the B/Victoria lineage. Two (0.7%) oseltamivir-resistant A(H1N1)pdm09 viruses have been reported to date this season. Among the 10,227 influenza-associated hospitalizations reported to date this season, 85.2% were associated with influenza A of which 97.0% were A(H3N2), and more than 51% were among adults ≥65 years. A total of 81 influenza-associated paediatric deaths have been reported to date this season, 44 with influenza A, 36 with influenza B and one with both influenza A and B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 08, ILI and acute respiratory illness consultation rates continue to increase in the eastern part of the region and decrease in western and northern countries; although rates remain above the epidemic threshold in these countries. Since the beginning of the season, 68% of detections from sentinel and non-sentinel sources were influenza A and 32% were influenza B; A(H1N1)pdm09 continues to be the predominant strain. Influenza A is predominant in northern, eastern and central regions while influenza B is reported as predominant in southern and western regions, and the UK (Northern Ireland). Among the 198 A(H1N1)pdm09 viruses tested for resistance to oseltamivir, 3 were found to contain the H275Y mutation; all three were specimens from hospitalized immunocompromised patients receiving oseltamivir treatment. The proportion of hospitalizations for severe acute respiratory illness that were positive for influenza has been stable in recent weeks.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
No new WHO report of Influenza at the Human-Animal Interface has been published since 15 February 2013.
WHO Influenza at the human-animal interface

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 08.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.